

ORIGINAL

Application No. **77455**

**APPLICATION FOR PERMIT TO APPROPRIATE THE PUBLIC
WATERS OF THE STATE OF NEVADA**

THIS SPACE FOR OFFICE USE ONLY

Date of filing in State Engineer's Office OCT 07 2008

Returned to applicant for correction OCT 10 2008

Corrected application filed _____ Map filed OCT 15 2008

The applicant Silver State Geothermal, LLC

730 Sandhill Road, Suite 250 of Reno

Street Address or P.O. Box

City or Town

NV 89521

State and Zip Code

hereby make(s) application for permission to appropriate
the public waters of the State of Nevada, as hereinafter stated. (If applicant is a corporation, give date and place of
incorporation; if a copartnership or association give names of members.)

Foreign Limited Liability Co. in Delaware; File Date: 8/8/07

1. The source of water is Underground
Name of stream, lake, underground, spring or other sources
2. The amount of water applied for is 3.34 cfs N.T.E. ~~3,275 cfs~~ second feet.
One second foot equals 448.83 gallons per minute
(a) If stored in reservoir give number of acre-feet _____
3. The water to be used for Industrial
Irrigation, power, mining, commercial, domestic or other use. Must limit to one major use.
4. If use is for:
 - (a) Irrigation, state number of acres to be irrigated _____
 - (b) Stockwater, state number and kind of animals _____
 - (c) Other use (describe fully in No. 12) _____
 - (d) Power:
 - (1) Horsepower developed _____
 - (2) Point of return of water to stream _____

REL
see Note under
12

1373-44

5. The water is to be diverted from its source at the following point: (Describe as being within a 40-acre subdivision of public survey, and by course and distance to a found section corner. If on unsurveyed land, it should be so stated.)

NE¼ NE¼ Section 9, T.11N., R.43E. M.D.B.&M or at a point which from which the SE Cor. of said Section 9 bears S. 08° 11' 07" E. a distance of 4,866.30 feet. (Well #1)

6. Place of use: (Describe by legal subdivision. If on unsurveyed land, it should be so stated.)

See Attachment "A"

7. Use will begin about January 1 and end about December 31 of each year.
Month and Day Month and Day

8. Description of proposed works. (Under the provisions of NRS 535.010 you may be required to submit plans and specifications of your diversion or storage works.) (State manner in which water is to be diverted, i.e. diversion structure, ditches and flumes, drilled well with pump and motor, etc.)

Proposed wells, pumps, storage tanks and distribution system

9. Estimated cost of works: \$130 Million

10. Estimated time required to construct works: Three Years

(If well completed, describe works.)

11. Estimated time required to complete the application of water to beneficial use: Five years

12. Provide a detailed description of the proposed project and its water usage (use attachments if necessary):
(Failure to provide a detailed description may cause a delay in processing.)

See Attachment "B" & tables for cooling tower water demand calculations & justification. Water rights are requested under NRS 534.120(2) as a preferred use & renewable energy under NRS 701.080. Silver State Geothermal is requesting a total combined duty not to exceed 3,275 afa to be developed from a combination of up to four wells shown on the supporting map as wells #1-4.

13. Miscellaneous remarks:

See Attachment "C" for further information.

chris@gbis.com

E-mail Address

(775) 323-1804

Phone No.

APPLICATION MUST BE SIGNED
BY THE APPLICANT OR AGENT

By

Chris C. Mahannah, PE, Agent

Type or print name clearly

Signature, applicant or agent

Mahannah & Associates, LLC

Company Name

P.O. Box 2494

Street Address or P.O. Box

Reno, NV 89505

City, State, Zip Code

\$250 FILING FEE AND SUPPORTING MAP MUST ACCOMPANY APPLICATION

Revised 11-07

Protested: December 19, 2008, by the Bureau of Land Management Pro. w/D 12/4/09

ATTACHMENT "A"
SILVER STATE GEOTHERMAL, LLC
PROPOSED PLACE OF USE

$\frac{1}{4}$ $\frac{1}{4}$	Section	Twn	Rng
All	3	11N	43E
All	4	11N	43E
Lots 5-14	5	11N	43E
Lots 8-19	6	11N	43E
Lots 1-4, W2E2, E2W2	7	11N	43E
N2, N2S2, SESE	9	11N	43E
All	10	11N	43E
N2, N2S2, SWSW, SESE	15	11N	43E
All	16	11N	43E
NE, E2SE, SWSE	17	11N	43E
Lots 5-8, W2NE	19	11N	43E
SESE	20	11N	43E
All	21	11N	43E
NENE, W2SW	22	11N	43E

This place of use is consistent with the legal description shown under USDOI BLM Geothermal lease boundaries under Serial Numbers: NVN083960 & NVN083959 issued to Silver State Geothermal, LLC effective October 1, 2007.

ATTACHMENT "B"

The Big Smoky Valley Project will consist of five geothermal powered turbine & generator sets with associated facilities producing a net of 30 megawatts. The supporting calculations (see attached tables) detail the water requirements for cooling one turbine unit in three scenarios: average, winter and summer. Annual consumption on the average will be 3,275 acre-feet.

ATTACHMENT "C"

Renewable Portfolio Standard: In 1997 Nevada passed a Renewable Portfolio Standard as part of their 1997 Electric Restructuring Legislation (AB 366). It required any electric providers in the state to acquire actual renewable electric generation or purchase renewable energy credits so that each utility had 1 percent of total consumption in renewables. On June 8, 2001, Nevada Governor Kenny Guinn signed SB 372, at the time the country's most aggressive renewable portfolio standard. In June 2005, the Nevada legislature passed a bill during a special legislative session that modified the Nevada RPS (Assembly Bill 03). The bill extends the deadline and raised the requirements of the RPS to 20 percent of sales by 2015. The Silver State Geothermal Big Smoky Valley Project will fulfill a portion of the State mandated RPS.

State and County Economic Benefit: The Smoky Valley Project will bring significant economic benefit to the State and County. Development and construction of the project will create many temporary jobs during the next 1.5 years and plant operations will require 15+ permanent fulltime skilled employees. Construction and operation will increase sales tax revenues and the project will be subject to net proceeds of mines and property taxes. Additional, under new federal legislation the State and County will receive 50% and 25 % respectively of royalties collected from inclusion of federal leases in the participating area of the geothermal resource. The plant and attendant transmission facilities are easily accessible and supported from existing County infrastructure and will not require significant additions to County resources.

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*** RUN IDENTIFICATION ***

Project Name	SSG annual operation
System	Binary single unit
Run Number	

*** COOLING TOWER DESIGN INPUTS ***

Atmos Press (psia)	12
Inlet Air Wet Bulb Temp (F)	41
Inlet Air Dry Bulb Temp (F)	51
Hot Water Temp (F)	85
Approach = TCold-Twb (F)	29
Liquid/Gas Ratio (lb/lb)	1
Circulating Water Flow (gpm)	36903
Blowdown Cycles of Conc	3
Drift Loss (%)	.001
Makeup Water Temp (F)	60
Fan Total Press (inH2O)	0.5
Fan Efficiency (%)	75

*** RESULTS, TOWER CALCULATIONS ***

Number Transf Units (KAV/L)	.68337
Cold Water Out Temp (F)	70.
Temp Rise = THot-TCold (F)	15.
Water Evap Rate (gpm)	406.09
Blowdown Rate (gpm)	202.68
Driftloss Rate (gpm)	.36903
Total Makeup Req'd (gpm)	609.14
Exit Air Temp Sat (F)	63.45
Heat Rejected (mmBtu/Hr)	276.77
Dry Air Flow (klb/HR)	18,452.
Enthalpy Air In (Btu/lb)	16.969
Enthalpy Air Out (Btu/lb)	31.969
Specific Vol Exit Air (cf/lb)	16.547
Sat Exit Air Flow (1000 cfm)	5,088.5
Approx Fan Power (hp)	533.72
Approx Pump Power (hp)	442.84

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*** RUN IDENTIFICATION ***

Project Name	SSG summer operation
System	Binary single unit
Run Number	

*** COOLING TOWER DESIGN INPUTS ***

Atmos Press (psia)	12
Inlet Air Wet Bulb Temp (F)	55
Inlet Air Dry Bulb Temp (F)	71
Hot Water Temp (F)	85
Approach = TCold-Twb (F)	15
Liquid/Gas Ratio (lb/lb)	1
Circulating Water Flow (gpm)	36903
Blowdown Cycles of Conc	3
Drift Loss (%)	.001
Makeup Water Temp (F)	60
Fan Total Press (inH2O)	0.5
Fan Efficiency (%)	75

*** RESULTS, TOWER CALCULATIONS ***

Number Transf Units (KAV/L)	1.1143
Cold Water Out Temp (F)	70.
Temp Rise = THot-TCold (F)	15.
Water Evap Rate (gpm)	495.35
Blowdown Rate (gpm)	247.31
Driftloss Rate (gpm)	.36903
Total Makeup Req'd (gpm)	743.03
Exit Air Temp Sat (F)	72.332
Heat Rejected (mmBtu/Hr)	276.77
Dry Air Flow (klb/HR)	18,452.
Enthalpy Air In (Btu/lb)	25.374
Enthalpy Air Out (Btu/lb)	40.374
Specific Vol Exit Air (cf/lb)	16.977
Sat Exit Air Flow (1000 cfm)	5,220.9
Approx Fan Power (hp)	547.61
Approx Pump Power (hp)	442.84

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*** RUN IDENTIFICATION ***

Project Name	SSG winter operation
System	Binary single unit
Run Number	

*** COOLING TOWER DESIGN INPUTS ***

Atmos Press (psia)	12
Inlet Air Wet Bulb Temp (F)	26
Inlet Air Dry Bulb Temp (F)	33
Hot Water Temp (F)	85
Approach = TCold-Twb (F)	44
Liquid/Gas Ratio (lb/lb)	1
Circulating Water Flow (gpm)	36903
Blowdown Cycles of Conc	3
Drift Loss (%)	.001
Makeup Water Temp (F)	60
Fan Total Press (inH2O)	0.5
Fan Efficiency (%)	75

*** RESULTS, TOWER CALCULATIONS ***

Number Transf Units (KAV/L)	.52024
Cold Water Out Temp (F)	70.
Temp Rise = THot-TCold (F)	15.
Water Evap Rate (gpm)	333.69
Blowdown Rate (gpm)	166.48
Driftloss Rate (gpm)	.36903
Total Makeup Req'd (gpm)	500.53
Exit Air Temp Sat (F)	54.524
Heat Rejected (mmBtu/Hr)	276.77
Dry Air Flow (klb/HR)	18,452.
Enthalpy Air In (Btu/lb)	10.124
Enthalpy Air Out (Btu/lb)	25.124
Specific Vol Exit Air (cf/lb)	16.155
Sat Exit Air Flow (1000 cfm)	4,968.2
Approx Fan Power (hp)	521.1
Approx Pump Power (hp)	442.84